from enforcing or otherwise circumvent the requirements of section 271, the Minnesota LATA Order clearly bars the Commission from issuing any forbearance of section 271.

CONCLUSION

For the foregoing reasons, ALTS requests that the Commission promptly adopt the rules proposed in these comments.

Respectfully submitted,

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NORTHPOINT COMMUNICATIONS' PROPOSED REMEDIES FOR PROMOTING DSL COMPETITION

Introduction: Small and medium size businesses and residential consumers currently lack cost-effective means of receiving high-speed data services over the "last mile" to their homes and business premises. Regulators have expressed growing interest in alleviating this lack of bandwidth through the adoption of measures to promote competition in this market. Vigorous competition by CLECs and ILECs will best promote innovation and consumer choice. As a CLEC focused on providing DSL service to this market, NorthPoint has accumulated substantial experience over the last year in the type of ILEC practices that promote, rather than frustrate, competitive alternatives. This experience consistently demonstrates that while each ILEC currently provides some unbundled network elements under reasonable terms and conditions, each ILEC also erects a host of onerous and unnecessary barriers to increasing competitive opportunities. Moreover, there is no consistency, as every barrier that one ILEC claims is necessary, another ILEC avoids entirely. Elimination of the more onerous ILEC practices should be a precondition for any ILEC seeking Section 706 or other regulatory relief that is based on the premise that ILECs are fully meeting their existing obligations to provide the collocation and loops necessary for competition to develop. Standardizing pro-competitive ILEC practices also would greatly assist DSL CLECs in deploying competitive alternatives for consumers while minimally burdening ILECs. The following list of proposed remedies thus: 1) is narrowly tailored to solve specific problems commonly faced by DSL CLECs; and 2) can be easily implemented, as demonstrated, for instance, by the fact that they have already been implemented by an ILEC or ordered by a regulatory commission.

I. INCREASING THE SPACE AVILABLE FOR PHYSICAL COLLOCATION

Problem: CLECs cannot provide DSL service in the area served by a Central Office ("CO") unless they obtain physical collocation space in the CO. The importance of collocation thus cannot be overemphasized -- it is the single most important limitation to increasing broadband alternatives in the last mile! The Telecommunications Act of 1996 requires ILECs to provide physical collocation wherever available, but ILECs are increasingly asserting that space in unavailable. NorthPoint has had one or more applications for physical space denied in 10 of the 14 states in which it has submitted applications, and other CLECs have experienced similar problems in obtaining physical collocation space.

Remedy 1: Require ILECs To Submit Detailed Floor Plans To State Commissions And Interested CLECs Wherever They Contend Space For Physical Collocation Is Unavailable.

Benefits: The FCC's Interconnection Order contemplated that ILECs would submit detailed floor plans when asserting that space was unavailable. Local Interconnection Order, ¶ 585. Few have done so, however, and there thus has been precious little review of the reasonableness of the space limitation claims asserted by ILECs. In California, NorthPoint and other facilities-based CLECs filed a motion demanding floor plans for 59 offices that Pacific asserted were out of space. Shortly thereafter, amid increasing scrutiny by CLECs and state regulators, Pacific found additional space in two-thirds of the 59 offices that it had declared to be closed. Thus, even the threat of third-party scrutiny can force an ILEC to be more conscientious in identifying available space. Floor plans also allow for independent verification that an ILEC's claims of lack of space are reasonable.

Remedy 2: Require ILECs To Remove Obsolete Equipment And Non-Critical Administrative Offices In COs To Increase The Amount Of Space Available For Collocation.

Benefits: Because the rush for collocation is a very recent phenomenon, freeing up space in COs has received little attention. In the only related state proceeding to date, U S WEST testified that it frequently has large, obsolete, older-model switches in its COs which it does not bother to remove until it needs the space for its own uses. U S WEST admitted that it would not remove such equipment when CLECs applied for collocation in these types of COs; instead, it considers the CO to be out of space. In addition to obsolete equipment, the few CO floor plans that have been made public to date also reveal large numbers of administrative offices, which were added when space was not at a premium. Many or all of these offices could be moved to regional administrative office centers with little hardship. Unfortunately, without federal or state intervention, ILECs have no incentive to take these simple steps for competing CLECs. The FCC thus should condition any Section 706 relief on ILECs agreeing to remove obsolete equipment and noncritical administrative offices identifiable from CO floor plans.

Remedy 3: Prohibit ILECs From Warehousing CO Space For Themselves.

Benefits: A final reason underlying the ILECs' claims that offices are closed is that they warehouse unlimited space for potential future needs. In California, for instance, Pacific Bell recently announced it would be deploying its own retail ADSL service in several COs which it had declared closed to CLECs. Yet at the time it was informing CLECs that no physical collocation space was available, Pacific clearly had reserved sufficient space in those same COs for its own ADSL service. By contrast, ILECs impose on CLECs specific "anti-warehousing" rules whereby CLECs lose their collocation space if they do not utilize it in a certain period of time, generally around six months. Parity requires that first-come first-serve rules apply equally to all carriers and that all carriers be barred from warehousing. The premise of ILEC Petitions for Section 706 Relief is that they have no advantages over CLECs in the emerging DSL marketplace. If ILECs want relief based on this theory, any relief should be conditioned on the ILECs' agreeing to use collocation space within the same time frame allowed CLECs.

II. DECREASING EXCESSIVE WAITS FOR COLLOCATION

Problem: In addition to the alleged lack of space for collocation, CLECs also face excessive ILEC-induced delays in obtaining physical collocation. A combination of anticompetitive and arbitrary ILEC procedures for ordering, purchasing, and delivering physical collocation cages often increase the total time to obtain cages to well over a year. These delays greatly limit customer choice yet could easily be remedied by simply eliminating the more arbitrary ILEC practices.

Remedy 4: Ensure Prompt Collocation Ordering Rights By Requiring ILECs To File Collocation Tariffs (Saves 2-6 Months)

Benefits: Once a CLEC is allowed to purchase physical collocation space, it can expect to wait a minimum of four months to have the cage constructed. Arbitrary ILEC ordering requirements, however, routinely subject CLECs to several month delays before they are even able to purchase collocation space. For instance, U S WEST has arbitrarily prevented NorthPoint from ordering collocation for several months by refusing to allow NorthPoint to place an order in any state in which is has not yet been approved as a CLEC, signed an interconnection agreement, and obtained State commission approval of the agreement. These steps take a minimum of six months in most states; U S WEST thus has kept NorthPoint from placing a single order in its territory to date. By contrast, Bell Atlantic, Ameritech, and Pacific Bell have tariffed physical collocation at the state or federal level, which allows a CLEC to order a cage immediately. Immediate ordering allows the CLEC to have a cage built while it is in the process of obtaining CLEC authority and a signed and approved interconnection agreement during the 4-12 month it takes the ILEC to build the collocation space. Immediate collocation ordering rights thus promotes speedier broadband deployment. Nor is there any legitimate business justification for not tariffing collocation, since several ILECs have done just that. Accordingly, any relief under section 706 should be conditioned on the filing of appropriate physical collocation tariffs at the state or federal level.

Remedy 5: Require ILECs To Provide Collocation Quotes In 10 Days (Saves Up To Four Months)

Benefits: Before physical collocation can be purchased, ILECs require CLECs to confirm availability and price by filing a request for quote. Ameritech provides quotes within 10 days regardless of the number of quotes submitted at any time. Other ILECs, however, require dramatically different intervals for providing a quote. For example, it took SBC almost 4 months to provide NorthPoint with quotes for several dozen Central Offices in Texas. This causes unnecessary delay on top of the excessive waits for a cage once an order is placed. The Commission should condition any Section 706 relief on the ILECs' commitment to provide quotes as to both price and availability within 10 days, regardless of the number of quotes submitted at any time.

Remedy 6: Require ILECs To Provide Standard Cage Completion Dates Of No Greater Than 90 Days For Conditioned Space

Benefits: After a quote is accepted, the ILEC begins constructing the actual collocation cage. Cage completion intervals for ILECs range from 90 days on up. In non-ILEC offices housing ISP equipment, similar cages generally are constructed in less than 30 days. There is simply no reason for ILECs to take more than 90 days to construct a cage in conditioned space, which generally requires only the extension of power, air conditioning, and the construction of a reinforced steel mesh cage to separate the cage from the rest of the central office. ILECs, however, currently have no incentive to deliver a cage in a timely manner. Accordingly, the Commission should require the ILECs to deliver cages within 90 days as a precondition to any section 706 relief.

Remedy 7: Require ILECs To Provide Cages In Unconditioned Space In 120 Days

Benefits: In an increasing number of instances, CLECs are told that space could be made available but it must first be conditioned for collocation, e.g., asbestos must be removed, special air conditioning and power must be added, etc. While some ILECs – such as Bell Atlantic South -- condition space within 120 days, others provide conditioning only within 180 days or, worse yet, on a wholly arbitrary "individual case basis." There is no reason to allow some ILECs to unilaterally determine a reasonable interval when others require only 120 days. Accordingly, any relief under section 706 should be conditioned on the ILECs' agreement to provide cages in unconditioned space within 120 days.

Remedy 8: Require ILECs To Meet Their Cage Completion Intervals Or Face Withholding Of 271 Authority Or Other Sanctions

Benefits: Even after a CLEC obtains a promised due date, its problems are not over. NorthPoint has not had a single cage completed and released prior to its planned completion date (regardless of the amount of work required). Moreover, while most of the cages it purchased in Los Angeles were satisfactorily delivered, almost all the cages NorthPoint purchased in New York and San Francisco were either delivered late or had some flaw that rendered them unacceptable. This causes great hardship in terms of carefully planned installation schedules and customer expectations. (While SWBT requires five days to fix flaws in the cage, other ILECs provide no guarantee of when flaws will be fixed.) Currently, neither late nor flawed deliveries are reported and late completions have no consequences. In order to remedy this problem, the Commission should grant every ILEC five days to fix flaws in the cage, but require reporting of missed cage construction dates, and impose monetary sanctions or other regulatory penalties (such as denial of section 271 relief) when intervals are consistently missed.

DECREASING EXCESSIVE CHARGES FOR COLLOCATION

Problem: Aside from needing cages delivered in a timely manner, CLECs require cost-effective collocation which enables them to serve customers in an efficient manner. The current system is characterized by a total absence of parity. NorthPoint has been charged non-recurring collocation charges ranging from $10,000 to over $550,000 for a single cage. By contrast, the recent ILEC retail ADSL tariffs reveal that ILECs are imputing no collocation charges for their own services. For competition to develop, the wholesale charges for collocation must be decreased and ILECs must impute to their own services the collocation charges they collect from CLECs.

Remedy 9: Require ILECs Seeking Section 706 Relief To Lower Collocation Costs

Benefits: CLECs' ability to deploy xDSL services has been hampered by arbitrary pricing of collocation cages. Application fees vary between $0 (Pacific Bell) and $7500 (Bell Atlantic North). Charges for cage construction range from $10,000 in Georgia to more than a hundred thousand dollars. Power, heating, and ventilation ("HVAC") installation charges can range from $2,000 to $12,000. Other disparities include the monthly recurring costs for the cage, which ranges from $700 to $2,000. These glaring disparities arbitrarily limit the economic viability of providing broadband service to consumers. To police against anticompetitive pricing, regulatory bodies must ensure these arbitrarily high collocation rates are lowered.

Remedy 10: Require ILECs To Eliminate First-In Penalties For Unconditioned Space

Benefits: Several ILECs currently require the first collocator to pay 100 percent of conditioning an office to make it suitable for collocation, subject to a rebate when additional CLECs request collocation space in that CO. Since the bill to the "first-mover" can run well over a half million dollars, with no guarantee of a rebate, CLECs have a powerful incentive to wait until someone else has entered the CO before submitting their request. This has led to a reluctance to act first that has diminished consumers' ability to choose among broadband services. This anticompetitive scheme should be banned in favor of a cost-sharing arrangement like that adopted in New York, where all carriers share the costs of conditioning based on their proportionate share of the office's floor space. Only by so doing will the Commission promote deployment of broadband alternatives in COs where physical collocation space must be added.

Remedy 11: Require ILECs To Impute The Cost Of Collocation In Their Retail Tariffs

Benefits: If the Commission does not set collocation prices, then it can at least partially remedy the situation by requiring ILECs to impute the cost of collocation to their retail ADSL tariffs on file with the Commission. Currently, CLECs face a "price squeeze" in which CLEC collocation and loop costs are less than an ILEC's full retail price. Obviously, no competition can develop if wholesale inputs for CLECs are more expensive than ILEC retail services! Imputation also will provide incentives for ILECs to rationalize their pricing and come up with lower price alternatives for CLECs to avoid imputing an amount inconsistent with market needs.

PROVIDING ALTERNATIVES TO PHYSICAL COLLOCATION

Problem: CLECs currently insist on physical collocation simply because most ILECs make no comparable solution available. ILECs, of course, have little reason to develop creative solutions since they can move their own xDSL equipment into central offices without worrying about space limitations, intervals, or imputed costs. CLECs have suggested numerous alternatives that would promote broadband service deployment if made available under reasonable terms and conditions. Given the ILECs' reluctance to agree to such solutions, however, it is apparent that regulatory assistance is required.

Remedy 12: Virtual Collocation Arrangements Should be Made Available to CLECs in Which CLECs Can Own, Install, and Maintain Their Own Equipment

Benefits: To date, CLECs have focused on obtaining physical collocation space in order to ensure that they are able to install and maintain their own equipment. Virtual collocation arrangements – where the CLEC's equipment is intermixed with the ILEC's and the ILEC installs and maintains the equipment -- severely limit the CLEC's ability to respond to service problems and its flexibility to deploy new services. Virtual collocation arrangements in which the CLECs can own, install and access their own equipment would not pose the same disadvantages and would provide many of the benefits of physical collocation. Accordingly, this Commission should condition section 706 relief on the ILEC's development of virtual collocation arrangements where the CLEC can own, install and maintain its equipment

Remedy 13: Cageless Collocation Must be Made Available to CLECs at Charges Significantly Less Than Physical Collocation.

Benefits: While cageless collocation can allow a CLEC to deploy service effectively, it is far less attractive than physical collocation, which allows a CLEC to maintain complete and exclusive control over its equipment. Nonetheless, those few ILECs that do allow cageless collocation – such as BellSouth -- charge rates that are comparable or proportionally more expensive than those for physical collocation. Cageless collocation requires less space and thus should be much cheaper and quicker than physical collocation. Low-cost cageless collocation must be made available before any section 706 relief is granted.

REMOVING ANTICOMPETITIVE RESTRICTIONS ON EQUIPMENT IN COLLOCATION CAGES

Problem: The ILECs' routinely argue that xDSL equipment should not be placed in collocation cages, despite this Commission's clear mandate that they 'permit the collocation of equipment used for interconnection or access to unbundled network elements." Local Interconnection Order, ¶ 579. Thus, even after collocation space is obtained, ILEC "gatekeeping" threatens to make it useless for the provisioning of DSL service.

Remedy 14: This Commission Should Specifically Clarify that Digital Subscriber Line Access Multiplexers ("DSLAMs") Can Be Placed in Collocation Cages.

Benefits: In order to provide xDSL service, DSL CLECs must be able to collocate a DSLAM, which multiplexes customer traffic from multiple xDSL lines onto a single DS-3. This Commission already has mandated that "transmission equipment such as optical terminating equipment and multiplexers, may be collocated on LEC premises." Local Interconnection Order, ¶ 580 (emphasis added). Nonetheless, several ILECs have refused to allow NorthPoint to collocate its DSLAM. To eliminate time-consuming and counterproductive disputes, any section 706 relief should be conditioned on the ILECs' allowing the collocation of DSLAMs and other multiplexing equipment required for DSL services.

Remedy 15: This Commission Should Specify that Remote Access Management Equipment and Retail Services Can Be Placed in Collocation Cages.

Benefits: ILECs, by definition, employ on-site technicians to monitor their CO equipment. CLECs, by contrast, rely on remote access management systems to monitor their equipment, since CLEC technicians cannot be stationed in ILEC COs. Although Pacific Bell allows this equipment, several ILECs have attempted to ban remote access management equipment from collocation cages. This can severely damage a CLEC's ability to provide xDSL service, since the remote access management equipment allows a CLEC to identify service troubles. Similarly, in order to use the remote access management equipment, the CLEC must be able to order retail service such as POTS lines to the collocation space. (Without these retail services, the CLEC has no means of accessing the remote access management equipment.) This Commission should thus condition any section 706 relief on the ILECs' allowing the collocation of remote access management equipment and their commitment to provide retail services to the collocation cage.

Remedy 16: ILECs Should Only Be Allowed to Subject CLEC Equipment to Legitimate Safety Standards.

Benefits: Both CLECs and ILECs have a strong and shared interest in ensuring that all equipment placed in their central offices meets industry safety standards, such as NEBS Level 1. Bell Atlantic, however, is requiring CLECs to meet far more stringent NEBS Level 2 and 3 standards. This is entirely inappropriate since these standards deal almost exclusively with equipment reliability, not equipment safety. ILECs have no legitimate reason in requiring that CLEC equipment meet specific reliability standards; such concerns are properly left to the mutual agreement of the CLECs, their customers, and their equipment providers. By requiring certification to NEBS Levels 2 and 3, the ILECs condemn CLECs and their equipment vendors to months of testing, at a cost of hundreds of thousands of dollars, significantly delaying xDSL CLECs' ability to provide innovative broadband services. Accordingly, this Commission should condition any grant of section 706 relief on the ILECs' agreement to require CLEC equipment to meet only industry safety standards, such as NEBS Level 1.

Remedy 17: ILECs Should Be required to List All Approved Equipment and all Equipment They Use

Benefits: In almost all instances where ILECs have informed NorthPoint that equipment is not NEBS-compliant and refused to allow NorthPoint to place its equipment in the collocation cage, the equipment vendor has insisted it was selling the very same equipment to the ILEC in significant quantities for use in COs. Texas currently requires ILECs to list all equipment used within the CO, and there is no valid reason for why other ILECs cannot publish similar lists. This simple remedy would help to prevent discrimination by allowing independent verification that the ILECs are not using equipment they have refused to allow CLECs to use.

LOOPS

Problem: DSL requires "clean" copper loops devoid of a variety of impediments such as bridge tap, load coil, midspan repeaters, SLCs, and DLCs. Although almost all of the ILECs are now providing DSL service in some form, only Ameritech and BellSouth offer an "unbundled DSL loop" without any of these impediments. The other ILECs offer only an unbundled ISDN or analog loop, and either refuse to take steps required by CLECs for DSL service, or charge excessive conditioning charges.

Remedy 18: ILECs Should be Required to Provide Unbundled xDSL Loops

Benefits: As explained above, unbundled digital-quality loops are required in order for consumers to enjoy DSL service. Some ILECs offer unbundled DSL loops free of DSL impediments demonstrating the technical feasibility of doing so. Provision of unbundled DSL loops free of bridge tap, load coil, and midspan repeaters should be made a pre-condition of ILEC retail DSL offerings. In addition, in order to further ensure competitive parity, this Commission should require, as a precondition to any relief under section 706, that the ILECs move loops off SLCs and DLCs without any charge.

Remedy 19: ILECs Should be Required to Meet Pro-Competitive Loop Provisioning Intervals

Benefits: While ILECs such as Bell Atlantic have committed to provide loops within five days of a CLEC's order, others require double that time. There is no justification for these dilatory loop installation intervals, which frustrate consumers' needs; accordingly, this Commission should require five day loop ordering interval guarantees as a precondition to section 706 relief.

Remedy 20: Standardization and Imputation of Loop Costs Should be Required as a Precondition for Section 706 Relief

Benefits: ILECs impose vastly different recurring and non-recurring charges for unbundled loops. Ameritech, for instance, charges $2.57 for an unbundled ISDN loop in Illinois (including all necessary conditioning charges), whereas SWBT's Texas SGAT charges $65, or 2500% more. These disparities cannot be explained by any legitimate cost differential. Moreover, when SBC/Pacific Bell filed its recent retail ADSL tariff, it reflected no loop charges based on the claim that there were no incremental costs to condition a digital loop. These disparities preclude cost-effective DSL alternatives, significantly diminishing competition and limiting consumers' ability to choose. Accordingly, leveling of unbundled loop rates should be a precondition for section 706 relief. In the alternative, if loop installation intervals and unbundled loop costs cannot be levelled across States, this Commission should require the ILECs to reflect these cost disparities in their own retail ADSL tariffs. Accordingly, imputation of loop costs should be required as a precondition for any section 706 relief.

VII. OPERATIONS SUPPORT SYSTEMS

Problem: Most ILECs currently do not provide CLECs with access to vital operations support systems, such as the loop qualification databases. In addition, the ILECs charge widely divergent rates for OSS access, creating a barrier to entry that diminishes competition and limits consumers' ability to choose.

Remedy 21: ILECs Should be Required to Provide Access to Loop Qualification Databases as a Precondition to Section 706 Relief

Benefits: While Bell Atlantic allows CLECs real-time access to a "loop qualification database" that indicates whether specific loops will support digital services like DSL, others ILECs do not. The inability to access this type of database severely hampers CLECs' ability to respond to customers' requests. Accordingly, any relief under section 706 should be conditioned on the ILECs' agreement to offer real-time access to all available loop qualification databases.

Remedy 22: Standardization and Imputation of OSS Charges Should be a Precondition to Section 706 Relief

Benefits: ILECs impose vastly different recurring and non-recurring charges for OSS access. SWBT, for instance, charges $4,705 per month for dedicated OSS access, whereas the Florida PSC did not allow BellSouth to charge for OSS access. These expensive OSS costs erect a barrier to entry that threatens to significantly diminish competition and limit consumers' ability to choose. Accordingly, leveling of OSS charges should be a precondition for section 706 relief. In addition, if OSS charges cannot be levelled across States, this Commission should require the ILECs to reflect these cost disparities in their own retail ADSL tariffs. Accordingly, imputation of OSS costs should be required as a precondition for any section 706 relief.

SPECTRUM INTERFERENCE

Problem: DSL, like all other services, causes a certain level of interference to other services carried over adjacent copper pairs. While most ILECs appear to be responsibly evaluating equitable approaches to managing potential spectrum interference, SBC/Pacific has unilaterally imposed spectrum interference policies that favor the specific spectrum map of its chosen vendor over all competing DSL vendors.

Remedy 23: Spectrum Interference Issues Should be Resolved through a Collaborative, not Unilateral, Process

Benefits: The ILECs' ability to terminate any interfering CLEC's xDSL service while immunizing their own xDSL service from similar interference charges is an open invitation for anticompetitive abuse. SBC, for instance, has recently indicated that it will not permit xDSL CLECs to offer any service that does not meet the specific spectrum interference specifications endorsed by SBC. SBC has further disadvantaged CLECs by refusing to release the study – apparently prepared by SBC's own xDSL equipment vendor -- underlying its spectrum interference guidelines. This behavior penalizes CLECs for using any xDSL equipment not used by SBC. By using an unsupported and unsubstantiated study to limit competitors' options, SBC is attempting to move spectrum interference issues out of industry standards bodies – where they are being actively researched and where they belong – and is attempting to unilaterally proclaim spectrum interference standards that will most benefit its own xDSl service. Accordingly, this Commission should condition any section 706 relief on the ILECs' agreement to resolve all spectrum interference issues in appropriate industry standards committees.

Collocation with Escort/CLEC Common Space Collocation

BA Position: Line of sight supervision is required in association with any third party access to common equipment space for the purposes of provisioning, maintaining or repairing transmission equipment. Traditional supervision of BA certified third parties is sufficient to address security concerns within that same common area in association with the installation of BA and third party transmission equipment.

Intermedia's Position: Traditional supervision of BA certified technicians is sufficient to address security concerns associated with common equipment space in association with the installation, provisioning, maintenance and repair of transmission equipment. The provisioning, maintenance and repair activities associated with CLEC services raise no incremental security issues which cannot be addressed by normal supervision and implementation of prudent access rules.

Security Concern Overview: The following security issues have been raised during the collaborative process:

A. Incidental/inadvertent action by technician (e.g., bumping into equipment, pulling wrong wire)
   1. Impacts CLEC services
   2. Impacts BA services

B. Deliberate action to disrupt services/network
   1. Impacts CLEC services
   2. Impacts BA services

Hypothetical Arrangement: The following represents a hypothetical arrangement. The placement of the racks could vary significantly. Any change would not materially impact potential security issues.

Four equipment racks/bays are located side by side in a row. The first rack is 100% occupied and is utilized by BA for active service. The second rack is currently under construction and will be utilized by BA after installation of equipment by a third party vendor. The third rack is currently used by a CLEC under a virtual collocation arrangement. The third rack is 50% utilized. The fourth rack is to be utilized by a CLEC using a collocation with escort arrangement or the CLEC proposed common space collocation arrangement. A common telecom cable support rack and a separate power cable support rack are spaced above the row. The following diagram shows such an arrangement:

Common Power Cable Support Rack

Common Telecom Cable Support Rack

Rack 1	Rack 2	Rack 3	Rack 4
BA	BA	CLEC	CLEC
Live Equip	Under	Virtual	Common
100% Fill	Construction	Collocation	Space
		50% Fill	Collocation

Access to:

Common Power Cable Support Rack:	BA personnel and BA Certified vendors
Common Telecom Cable Support Rack	BA personnel and BA Certified vendors

Rack 1	BA personnel
Rack 2	BA personnel and BA certified vendors
Rack 3	BA certified vendors for installation BA personnel for mtce, provisioning & repair
Rack 4	BA certified vendors for installation ? for mtce, provisioning & repair

CLEC Common Collocation Issues : The primary issue raised in association with the CLEC Common Space collocation proposal was that associated with security. All other issues were resolved, at least at a high level, during the collaborative sessions based upon agreements such as those to utilize union labor, locked cabinets, bonded employees, documented certification procedures, etc. In regard to the security issue, BA has repeatedly stated that access in this instance is not like that of third party access for the installation of equipment. As the above diagram and the following narrative show, such concerns do not have a sound basis.

In the normal course of work in the above hypothetical, certified vendors have access to all of the cable racks in association with the installation of both power and telecom cable and the installation of any additional racking. In establishing racking or pulling cables (BA or CLEC) the vendors have overhead access to racks directly over live BA equipment. Furthermore, certified vendors may work directly beside BA equipment in installing BA racks and transmission equipment as well as CLEC virtually located equipment and CLEC common space collocated equipment. All of this access by third party technicians is by occasional supervision rather than line of sight supervision. In association with work on Racks 2-4, the third party vendor may be working directly beside BA "LIVE" equipment. Thus, access to Rack 4 for third parties providing maintenance, provisioning and repair services to the CLEC would not materially insert additional inadvertent or deliberate security concerns into this environment. Existing security concerns might be proportionally increased only because of the additional time third parties might be within the common space environment. Any such concern could be addressed by proper notice of third party access allowing traditional BA supervisory observation on an as needed basis. Since BA will terminate UNEs on the equipment under either scenario, it will have total control over BA network access and any BA services. CLEC technicians with proper training on CLEC equipment and access to CLEC assignment and provisioning systems are best positioned to protect CLEC services.

Collocation with Escort Issues: Issues specific to BA's collocation with escort proposal include:

1. Mixing of union and non-union labor.
2. Contention for BA technicians during times of network outage.
3. Contention for BA technicians during normal working hours.
4. Introduction of potential delays in resolving CLEC network outages.
5. Unnecessary duplication of technicians.
6. Discrimination in the provision of maintenance, repair and provisioning functions.
7. Discrimination in availability based on actions of other CLECs and BA's space availability.
8. Through "migration", allows BA to designate point of collocation rather than allowing CLEC to interface at any technically feasible point as required by Telecom Act.
9. "Detailed" supervision by BA employees not familiar with CLEC equipment and without access to CLEC systems.
10. Discrimination as it relates to liability.

Intermedia Position: The NY PSC should adopt the CLEC Common Space Collocation proposal submitted jointly by the CLECs during the August collaborative. That proposal utilizing BA certified third party vendors best balances the security concerns of the industry with the CLEC needs to access space on a non-discriminatory and economic basis. If alternatively the Commission adopts the Collocation with Escort proposal of BA (against Intermedia objection), it must be modified to be offered in any central office where the CLEC is required to utilize virtual collocation or where no conditioned physical collocation space exists. Furthermore, any migration must allow 24 months for migration, provide for installation of new equipment within existing frames during that period, and require rebates of any non-recurring charges associated with initial establishment of the collocation with escort arrangement. Under any collocation with escort arrangement, BA must also assume financial liability associated with damage by installers to the equipment of other CLECs. Finally, BA must give CLECs priority when emergency situations exist and contention for BA technicians occurs.

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Comments of the Association for Local Telecommunications Services were served September 25, 1998 on the following persons by hand service.

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ECONOMICS AND TECHNOLOGY OF BROADBAND DEPLOYMENT

HAI Consulting, Inc.

Prepared For

The Association For Local Telecommunications Services

September 25, 1998

EXECUTIVE SUMMARY

This Report analyzes the evolving economics and technology of broadband services deployment in order to assess the proposals in the Commission's Broadband Services Rulemaking. The Commission's conclusion that competition will stimulate investment in local broadband technology is correct. However, the Incumbent Local Exchange Companies retain substantial market power that can thwart this competition. Therefore, regulation is necessary to ensure that broadband markets are open to competition.

The ILECs' ubiquity contributes to their market power. The ILECs are, by definition, collocated in every central office where customer loops come together. All those central offices are connected with one another. The investment required to duplicate the loop, central office, and interoffice facilities to serve small business and residential customers would be enormous. Thus, the ILECs control the essential facilities over which broadband services are being be provided. They can use this control to discriminate against competitive broadband suppliers. Without appropriate regulation designed to ensure that competitors have access to customers, the end result could be monopolization of broadband services and the extension of the bottleneck to the next generation of local exchange technology.

The separate subsidiary approach proposed by the Commission may provide consumer benefits. However, for this to be true, three conditions must be met. First, there must be an appropriate division of activities between the parent and the subsidiary. Second, with or without a separate subsidiary, enhanced collocation and unbundling safeguards are required. Finally, there must be effective enforcement that includes penalties and remedies for non-compliance.

The dividing line between the parent and the subsidiary should not be drawn along technology lines. The proper division is between competitive and non-competitive activities. If a technology that has monopoly characteristics is placed in the unregulated subsidiary, there is great potential that the ILECs will be able to create the next generation bottleneck free from necessary regulation.

Expanded collocation and unbundling are required, whether or not the ILEC chooses to adopt a separate subsidiary. The following unbundled network elements are necessary to promote broadband competition:

- Network Interface Device (NID)
- NID-mounted splitter
- Distribution facility
- Feeder/distribution interface
- Feeder facility
- Bandwidth enhancement device
- xDSL loop transport (DLC cases only)
- Broadband signal grooming
- Fast packet switching
- Broadband interoffice transport

In addition, CLECs must be given non-discriminatory access to end-to-end digital connectivity. That is, CLECs must be able to obtain, on a transparent basis, the bit streams originated by their potential customers, and to send bit streams to those customers. What this means is that if an ILEC subsidiary and competing CLECs are to have an equal opportunity to compete for the broadband business of a customer, the network elements that enable digital connectivity must reside in the parent.

While separate subsidiaries may make detection of discrimination more feasible in certain circumstances, they do not change incentives for discrimination. Without sufficient safeguards and effective enforcement, the Commission's proposals could actually harm consumers because the ILECs would be able to deploy essential new facilities free from necessary regulation.

Appropriate regulation will not deter ILEC broadband investments. Investment in broadband facilities by ILECs will earn a competitive return and allow them to participate fully in the burgeoning Internet market.

The ILECs will certainly argue that separate subsidiaries impose significant operational costs and deny consumers the benefits of economies of scope. However, markets allow efficiencies to be captured without the need for vertical integration. ILEC claims for economies of integration may be based on excess capacity or inappropriate technology choices. Even if it were true that there are vertical economies associated with the provision of broadband services by an ILEC that cannot be captured through efficient input markets, it does not necessarily follow that integration should be allowed. The risk of discrimination and cross-subsidy must be weighed against any benefits of integration.

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I. INTRODUCTION

The Association for Local Telecommunications Services ("ALTS") has asked HAI Consulting Inc. ("HAI") to provide an economic and engineering analysis of the proposals contained in the Federal Communications Commission's ("Commission") Advanced Telecommunications Capability Notice of Proposed Rulemaking ("Order/NPRM").[1] This Report analyzes the Commission's proposal in light of the evolving economics and technology of broadband deployment. We conclude that, with an appropriate division of activities between the parent and the subsidiary, enhanced collocation and unbundling safeguards, and effective enforcement, the separate subsidiary approach can provide consumer benefits by making discrimination by Incumbent Local Exchange Carriers ("ILECs") somewhat less likely. Without sufficient safeguards or effective enforcement, the Commission's proposal could actually make the problem worse because the ILECs would be able to deploy essential new facilities free from necessary regulation.

Precisely because the rules may have some effect in deterring discrimination, ILECs may choose not to use the separate subsidiary approach, preferring instead to provide broadband services in an integrated fashion. Whether or not separate subsidiaries are used, the current rules designed to prevent discrimination by an integrated ILEC must be modified in light of broadband technology developments. A key conclusion is that

[1] In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, Memorandum Opinion and Order and Notice of Proposed Rulemaking, released August 7, 1998. ("Order/NPRM")

either approach to regulation of ILEC broadband services requires adequate penalties and remedies for non-compliance with the Commission's Rules.

The paper is organized as follows. Section II describes broadband technology and the critical role it will play in development of the national economy. Section II also describes the key role that competitive firms are playing in development and implementation of broadband technology. Section III summarizes the approach to ILEC broadband deployment the Commission has suggested in the Order/NPRM and identifies the crucial underlying assumptions. These assumptions are analyzed in detail in Section IV. Section V provides a detailed description of the technology principles that provide the basis for defining the unbundling that will be required to make competitive broadband deployment a reality. A technical Appendix expands on the nature of broadband technology and the details of broadband interconnection. Attachment A describes HAI and the principal authors of the Report.

II. BROADBAND SERVICES AND MARKETS

The term "broadband services" is defined in Section A. Section B describes the use of such broadband services by various types of customers, and demonstrates the potential and rapid growth of the market for broadband services. Section C describes current providers of broadband services Section D introduces the policy significance of broadband deployment. Readers may also find the Appendix to the Report titled Broadband Technology Issues to be useful in providing background to this Section.

A. Broadband Services Definition

The Commission defines advanced services as "wireline, broadband telecommunications services, such as services that rely on digital subscriber line technology (commonly referred to as xDSL) and packet switching technology."[2] As the Commission itself notes,[3] this is not by any means a broad definition of what constitutes an advanced service. At least one class of advanced services the ILECs are actively promoting – the Advanced Intelligent Network ("AIN") – has nothing to do with broadband communications at all. Rather, it is concerned with intelligent processing associated with voice calls that enable sophisticated call features.

While the Commission makes many specific proposals and poses many questions about xDSL and broadband services as defined by the Order/NPRM, it does not deal generally with the broader set of activities the ILECs have underway, or may promote in the future. Thus, for instance, is it the Commission's intention to apply the separate subsidiary paradigm to the provision of intelligent services? Or, if the ILECs begin a more concerted effort to deploy fiber-to-the-curb ("FTTC") or fiber-to-the-home ("FTTH") systems to augment or replace xDSL, will the separate subsidiary requirements apply to such technologies as well? While this Report focuses on broadband services, as the Commission does, it discusses the definition, constituents, and technologies of broadband services somewhat more broadly than does the Commission in the Order/NPRM.

We define broadband services as follows:

> broadband services provide the end-to-end switched transport of customer information at bit rates of at least hundreds of kilobits per second, and usually much higher, using fast packet switching or another switching technology that minimizes delay across the network.

Several comments are in order about this definition; the reader may also want to refer to Section A of the Appendix, which provides a more detailed discussion of the concepts and issues

[2] Order/NPRM, para. 3.
[3] Order/NPRM, footnote 6.

underlying this definition. First, the definition focuses on broadband <u>transport</u>, not on the various applications that may <u>utilize</u> broadband transport, because transport services offered by ILECs, Competitive Local Exchange Carriers ("CLECs"), and Internet Service providers ("ISPs") are the principal focus of the Order/NPRM.

Second, the definition emphasizes <u>end to end</u> transport, intending to imply transport from premises to premises. It has long been a challenge to provide broadband transport over the "last mile" (or few miles) to/from the premises; this obstacle is finally being overcome.

Third, the definition refers to <u>switched</u> transport. <u>Dedicated</u> broadband circuits have been available for many years, and are not what is triggering the current intense interest in the telecommunications industry, nor a primary cause of the need for FCC rules.[4]

Fourth, while the term "broadband," when applied to digital communications, has traditionally referred to bit rates of at least 1.5 megabits per second ("Mbps"), one of the primary early "broadband" access technologies provides a range of subscriber access rates starting as low as 256 kilobits per second ("kbps"), and it make sense to include the low end of this range in the definition.

Fifth, two key characteristics of broadband transport as seen by the subscriber are high bit rates and low delay across the network. Delay refers to the time that elapses from the time a bit leaves the sender until it arrives at the receiver. There are several switching technologies already in existence that satisfy both requirements, although to varying degrees. They are jointly referred to as fast packet switching, and we have used that term in the above definition. At the same time,

[4] This statement applies to services offered to customers. Dedicated broadband circuits play an important role within ILEC and CLEC networks, and CLECs must be able to obtain such circuits from the ILECs on a non-discriminatory basis.

in order to avoid limiting the broadband definition to today's technologies, we have added the phrase "or another switching technology," to emphasize there may be other switching technologies on the horizon that support high bit rate and low delay.

It is also at this point necessary to summarize the components of a broadband network that fall out of the above definition and the subsequent explanation. These include:

- Customer access links operating in the range of at least hundreds of kbps to several Mbps today, and to perhaps hundreds of Mbps in the future;
- Fast packet switches, or potentially other types of broadband switches, that process information at sufficiently high rates so as to create minimum delay across a network – no more than a few tens of milliseconds; and
- High speed backbone networks connecting the fast packet switches together, at sufficiently high bit rates – hundreds of Mbps to several Gbps – to minimize the potential delay caused by the packet switches having to buffer data to be sent over the backbone.

It will later be useful to differentiate between "edge" switches that are connected to the network end of the customer access links and serve as the customers' entry points to the packet switch network, and "backbone" switches that appear in the backbone and increase the flexibility of transport over the backbone. These are roughly analogous to the "Class 5" or "end office" switches and the tandem switches, respectively, in the Public Switched Telephone Network ("PSTN"). It may also be the case that some customers are not served by an edge switch located in the central office ("CO") at the end of their access links, but by a switch more centrally located, in which case one might add "access trunks" or "access extensions" that run from the CO to the locations of the edge switches, and are physically part of the backbone networks.

It might appear at first glance that the broadband local exchange network represents a profound departure from the existing PSTN infrastructure. A closer examination of the above components, however, shows that for the Incumbent Local Exchange Carriers ("ILECs"), this is not the case. The leading technology candidate for broadband access is a family of standards collectively called xDSL, where DSL is an acronym for Digital Subscriber Line, and the x is simply a generic reference to any member of the family. xDSL uses existing copper wire pair cables; deployment requires the addition of electronics on the end of the pairs, but not the replacement of the existing cables nor the addition of new plant structures (that is, poles, underground conduit, and so on). When the copper pairs have fulfilled their useful life, the replacement technology is likely to be fiber to the curb or fiber to the premises; in either case, the change will incrementally extend the fiber optics cable and electronics that are increasingly used in the fiber-based "feeder" part of the loop.[5]

Broadband switches will be deployed in the CO, and/or some existing more centralized location, thus both the broadband access electronics and the switches will be able to take advantage of existing buildings and equipment like the main frame, emergency power, and environmental control systems. The switches themselves <u>may</u> be new equipment, but vendors of existing voice switches are also adding packet switching adjuncts to their existing telephone switches, so the packet and voice switches may be physically integrated, to some degree electrically integrated, and perhaps even able to jointly use some memory and processing elements.

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[5] The most commonly-deployed PSTN loop plant is broken up into two portions. The feeder portion runs between the CO and a point within 2-3 miles of the customer called the feeder distribution interface ("FDI"). It consists of either copper or fiber cables typically carrying a large number of voice circuits. The distribution portion of the loop plant fans out from the FDI and runs the remainder of the way to the premises, and today consists of cables of copper wire pairs. The circuit count in distribution cables is typically much less than that of feeder cables.